

Town of Arlington

730 Massachusetts Ave, Arlington, MA 02476 | 781-316-3000 | arlingtonma.gov

ARTICLE 1

CAPITAL BUDGET/ARLINGTON HIGH SCHOOL REBUILD

To see if the Town will vote to appropriate, borrow, or transfer from available funds, an amount of money to be expended under the direction of the Town Manager and/or the Arlington High School Building Committee to demolish, design, construct or re-construct and originally equip Arlington High School located at 869 Massachusetts Avenue, Arlington, MA, for which the Town may be eligible for a grant from the Massachusetts School Building Authority; or take any action related thereto. The MSBA's grant program is a non-entitlement, discretionary program based on need, as determined by the MSBA, and any costs the Town incurs in connection with the design, demolition, construction, re-construction, or equipping of the High School in excess of any grant approved by and received from the MSBA shall be the sole responsibility of the Town.

(Inserted at the request of the Town Manager)

ARTICLE 2

ACQUISITION OF REAL ESTATE/PARCEL 54-3-3.A (25 GROVE STREET)

To see if the Town will vote to authorize the Select Board to acquire, by purchase, gift, eminent domain or otherwise, in fee simple, an approximately 8,427 square foot developed parcel of land identified as parcel 54-3-3.A, located at 25 Grove Street, Arlington, including all buildings and structures thereon, and all privileges and appurtenances thereto belonging, as well as all trees and shrubs thereon, excepting therefrom any easements of record included within such description by whomsoever the same may be owned, for general municipal purposes, and for all purposes and uses accessory thereto, including but not limited to, *inter alia*, the expansion of either or both the existing Department of Public Works facility and/or the Arlington High School campus and Arlington High School educational facilities and amenities, including parking, service stations and areas for DPW vehicles, and/or class rooms, conference and meeting rooms, study areas and educational office space, and that to meet such expenditure to appropriate a sum of money to be expended at the direction of the Town Manager, to pay costs of acquiring said property, and for the payment of all costs incidental and related thereto, and to determine whether such amount shall be raised by taxation, transfer from available funds, borrowing or otherwise; to authorize the Town Manager and Select Board to apply for, accept and expend any grants from any source whatsoever that may be available to pay any portion of this project; or to take any other action related thereto.

(Inserted at the request of the Town Manager)

ARTICLE 3

APPROPRIATION/FUTURE ZONING BYLAW AMENDMENTS

To see if the Town will vote to appropriate or transfer a sum of money to fund development of amendments to Arlington's Zoning Bylaw to align with the Arlington

Master Plan, including payment of consultant fees in furtherance of the process; or take any action related thereto

(Inserted at the request of the Town Manager)

ARTICLE 4

DISPOSITION OF REAL ESTATE/ PARCEL 133-1-8 GLOUCESTER STREET

To see if the Town will vote to authorize the Select Board to dispose of, or grant access to or through a 216 square foot parcel of land identified as 133-1-8 Gloucester Street by sale, grant of easement, or otherwise under such terms as the Town may specify consistent with applicable legal requirements; or take any action related thereto.

(Inserted at the request of the Town Manager)

ARTICLE 5

APPROPRIATION/RESIDENTIAL DESIGN GUIDELINES

To see if the Town will vote to appropriate or transfer a sum of money to fund development of residential design guidelines, including payment of a consultant to develop such guidelines and recommend a design review process for the Town; or take any action related thereto.

(Inserted at the request of the Town Manager)

ARTICLE 6

APPROPRIATION/MUGAR PROPERTY APPLICATION REVIEWS

To see if the Town will appropriate or transfer a sum of money to fund support of the review and/or comment of any application or request for approval to the Town or the Commonwealth of Massachusetts for or accessory or otherwise related to the construction of residential dwelling units off of Dorothy Road in Arlington, Massachusetts (otherwise known as the "Thorndike Place" or the "Mugar Property"), including payment of legal, consultant, expert, and technical review fees in furtherance of such review and/or comment, and any legal actions reasonably arising therefrom permissible under law; or take any action related thereto.

(Inserted at the request of the Town Manager)



Town of Arlington, Massachusetts

ARTICLE 1

Warrant Article Title:

CAPITAL BUDGET/ARLINGTON HIGH SCHOOL REBUILD

Summary:

To see if the Town will vote to appropriate, borrow, or transfer from available funds, an amount of money to be expended under the direction of the Town Manager and/or the Arlington High School Building Committee to demolish, design, construct or re-construct and originally equip Arlington High School located at 869 Massachusetts Avenue, Arlington, MA, for which the Town may be eligible for a grant from the Massachusetts School Building Authority; or take any action related thereto. The MSBA's grant program is a non-entitlement, discretionary program based on need, as determined by the MSBA, and any costs the Town incurs in connection with the design, demolition, construction, re-construction, or equipping of the High School in excess of any grant approved by and received from the MSBA shall be the sole responsibility of the Town.

Requested by:

(Inserted at the request of the Town Manager)

ATTACHMENTS:

	Type	File Name	Description
▢	Reference Material	HighSchoolBuildingCommitte.pdf	High School Building Committee Report



Arlington High School Building Project

Report to Town Meeting April 2019



www.ahsbuilding.org

Table of Contents

A MESSAGE FROM THE CHAIR.....	5
AHS BUILDING COMMITTEE MEMBERS	6
EXECUTIVE OVERVIEW	7
THE NEED	9
<i>Enrollment.....</i>	9
<i>Deteriorating facility</i>	9
<i>New Education Standards</i>	10
DESIGN CONCEPT OVERVIEW	11
COST OVERVIEW	13
REFERENCE MATERIALS	15
PROCESS	17
<i>Project Milestones</i>	17
<i>Community Involvement</i>	18
<i>Massachusetts School Building Authority (MSBA)</i>	18
EDUCATIONAL VISION & EDUCATIONAL PROGRAM	19
DESIGN CONCEPT.....	20
<i>Site Plan.....</i>	21
<i>Historic Element Reuse</i>	22
DESIGN DECISIONS	23
<i>Design Decision Process.....</i>	23
<i>Additional Educational Programs and Offices.....</i>	24
<i>Parmenter School Analysis</i>	24
SUSTAINABILITY	26
<i>Accelerate Performance Program</i>	26
CONSTRUCTION.....	27
<i>Phased Construction Process</i>	27
<i>Student Impact During Construction</i>	27
<i>Construction Manager at Risk Delivery Method.....</i>	29
COST	30
<i>Cost Factors.....</i>	30
<i>Budget.....</i>	30
<i>MSBA's Contribution.....</i>	31
<i>Taxpayer Impact</i>	31
PERSPECTIVES ON COST	33
<i>Cost Cutting Measures</i>	33
<i>High School Benchmark Comparison</i>	33
<i>Request for Services estimates.....</i>	34
<i>The Consequences of a 'No' Vote.....</i>	35
NEXT STEPS.....	39

Note: This report is also online at www.ahsbuilding.org with hyperlinks for background information.

A MESSAGE FROM THE CHAIR

Honorable Town Meeting Members.

I am pleased to present the Arlington High School Building Committee Report to Town Meeting.

Arlington needs a new high school because of increasing enrollment and a deteriorating and outdated facility that no longer meets today's educational standards. In 2013, the New England Association of Schools and Colleges (NEASC) put Arlington High School on warning status because of inadequate facilities. Work toward a new school commenced shortly after NEASC issued its report with an assessment of the facility and, eventually, a successful application by the Town to participate in the Massachusetts School Building Authority (MSBA) rebuilding program.

The AHS Building Committee, which first convened in the fall of 2016, represents Town and school administration, local committees, and the community at large. As dictated by MSBA guidelines, the committee assessed the needs of the high school and worked to find the most educationally appropriate and fiscally responsible solution. The Committee has held eight forums, conducted surveys, talked and listened to our educational leaders and members of our community, and shared our work on a website visited by thousands of local residents.

The proposed design evolved through two years of planning and community input, and it is the **best choice for Arlington**. The design concept is cost effective, has a favorable construction timeline, creates accessible and usable green spaces, meets the expectations of a carefully crafted education plan, and helps achieve the town's ambitious sustainability goals. The new Arlington High School will allow educators to deliver 21st century instruction in a safe and welcoming environment.

The Committee is committed to using tax dollars wisely and is very aware that cost remains of concern to our community. To this end, we have undertaken measures to reduce the project budget without sacrificing the educational program. It is important to recognize, however, that **under any circumstances, the town will be spending significant funds on the high school in the near future**. This report details how rebuilding the high school with state funds and without delay is the most cost-effective choice for Arlington's taxpayers. Because of enrollment needs, deteriorating facility conditions and accreditation concerns, major work will need to be done on the high school – even in the event of a failed debt exclusion vote. We have evaluated the financial impact of this possibility, and it is included herein as “Consequences of a No Vote.”

This report is crafted in two parts. It leads with an executive overview covering the need, the design, and the cost. In the remainder, you will find a number of reference materials to give you helpful background information for making your decision. Examples include an explanation of the educational vision, details on the proposed facility's sustainability features, and more data about costs.

This report is the outcome of years of hard work by our committee, and we are excited to share it with you. We are pleased to have gained unanimous support from seven Town Committees: Select Board, School Committee, Finance Committee, Capital Planning Committee, Permanent Town Building Committee, Clean Energy Future Committee, and Sustainable Arlington.

This is a historic occasion for our town. **We have the chance to make a tremendous impact on the future of our children's education.** I hope you will join me in supporting Article 1 of the Special Town Meeting, and I respectfully ask for your affirmative vote.

Jeff Thielman
Arlington High School Building Committee Chair

AHS BUILDING COMMITTEE MEMBERS

Jeff Thielman, Chair
School Committee

Dr. Kathleen Bodie, Vice-Chair
Superintendent of Schools

Adam Chapdelaine, Vice-Chair
Town Manager

Kirsi Allison-Ampe, School Committee
Francis Callahan, Community Member
John Cole, Permanent Town Building Committee
Tobey Jackson, Community Member
Dr. Matthew Janger, High School Principal
Ryan Katofsky, Community Member
Domenic Lanzillotti, Purchasing Officer for the Town of Arlington
Kate Loosian, Community Member
Michael Mason, Arlington Public Schools CFO
Bill McCarthy, High School Assistant Principal
Steve Nesterak, Facilities Director
Judson Pierce, Community Member
Sanford Pooler, Deputy Town Manager
Brian Rehrig, Community Member
Daniel Ruiz, Community Member
Amy Speare, Community Member

Karen Tassone, Recording Secretary

Teacher Representatives

Shannon Knuth
Kent Werst

EXECUTIVE OVERVIEW

THE NEED

Arlington needs a new high school because of increasing enrollment and a deteriorating and outdated facility that no longer meets today's educational needs.

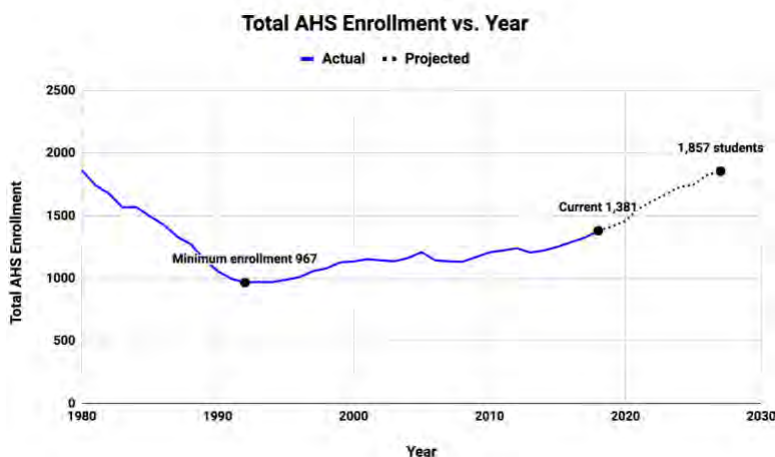
Enrollment

Enrollment at the high school has grown 22% in the past ten years. **With 1,380 students today, the high school is already reaching capacity.** The impact of this increased enrollment is seen in multiple ways, for example:

- Science labs are undersized and overcrowded; 38% of classes have more than 27 students, creating a challenging environment for optimal science instruction.
- Insufficient numbers of classrooms lead to rigid scheduling, limiting student course options.
- Cafeteria seats only 375, though there are 450 students per lunch period.
- Band and chorus are in undersized rooms, sometimes spilling into hallways.

High school enrollment is expected to continue to rise for the foreseeable future. Over the past decade, the district's enrollment has grown from 4,700 students to about 6,000. This is the equivalent of adding three elementary schools since 2009. Based on current town-wide enrollment in grades K-

8, there is a projected high school enrollment of 1,620 by 2022 (17% increase from today), and these numbers will continue to rise throughout the coming decade. Creative measures will become insufficient to maintain a quality educational environment. By 2027, when our projected high school enrollment will grow to 1,857 (a 34% increase from today), this situation will be untenable without more classrooms.



Deteriorating facility

With the first building constructed in 1914, and no significant renovations in the past 40 years, Arlington High School is showing its age. In 2013 Arlington's accrediting agency, the **New England Association of Schools & Colleges (NEASC)**, placed AHS on **'warning'** status citing facilities issues which affect the overall learning environment for the students:

- >30% of classrooms are inadequate and interfere with instruction (too small, poor configuration, poor acoustics, visual obstructions)
- Antiquated and small science labs create hazardous conditions
- Facility not conducive to faculty and student collaboration (limited meeting spaces, widely dispersed classrooms)
- Specialized spaces insufficient in size and configuration

According to the [2013 facilities audit by On-sight Insight](#), **numerous facility and mechanical systems are at or beyond their expected service life or in need of extensive repair** and the building structure causes limitations.

Additionally:

- Wiring throughout the complex is inadequate - many classrooms have only one outlet, some have none.
- There are significant temperature fluctuations throughout the building, making many classrooms too cold or too hot.
- Aging windows result in significant heating/cooling issues as well as water leaks.
- Numerous roof leaks over time result in systemic issues.
- Building construction limits the ability to install technology.
- There are over 33 entrances/exits complicating student supervision.
- There is a single, aging undersized elevator (for the entire 392,000 sf facility), which makes accessibility a challenge throughout the complex.

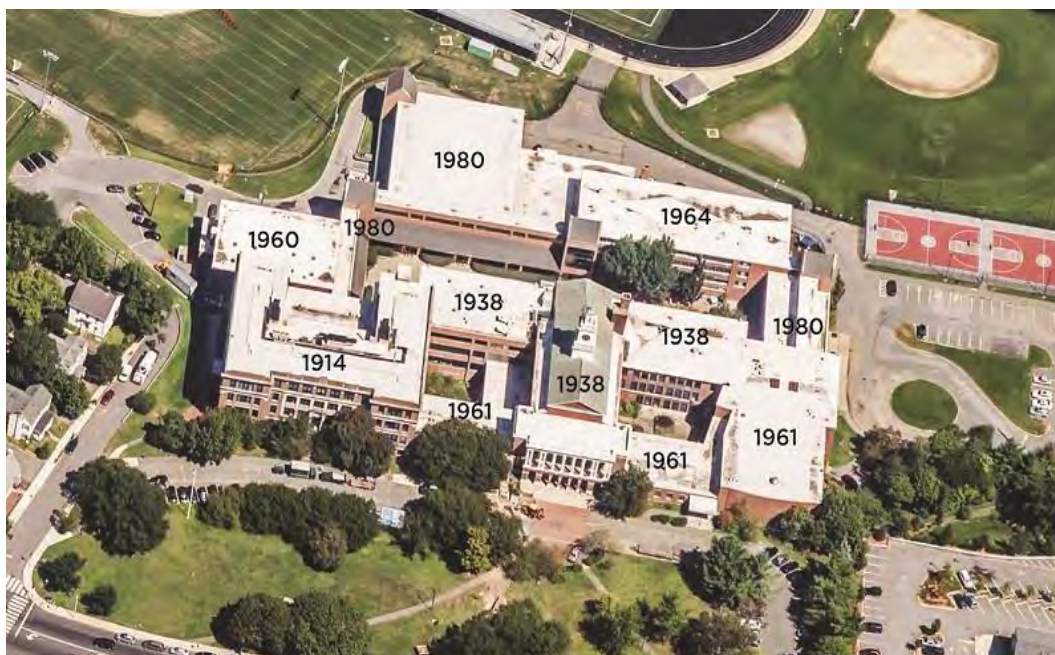


Figure a: Overview of AHS complex overlaid with construction dates of buildings

New Education Standards

The school's facility is an obstacle to teaching and learning and limits the faculty's ability to deliver a 21st century education. Education standards have significantly changed since the building was first constructed in 1914, or last renovated in 1980. **State and federal curriculum standards have moved from teaching information to teaching how to find, analyze, and make decisions based on information.**

Modern education environments require flexible spaces that can be used for small group collaboration or large group debate and discourse. Project-based learning requires space to create and spread out. Technology is a crucial part of education and must be seamlessly integrated. Interdisciplinary learning requires departmental adjacencies and collaboration. The facility should also support students' social-emotional needs and social-emotional learning. These features are not a 'luxury' or 'bonus', they are critical and necessary for delivering the modern education our students will need to succeed.

DESIGN CONCEPT OVERVIEW

The new school is the product of over two years of planning and community input. **The design concept was selected because it was the best combination of cost-effectiveness, educational design, and construction timeline.** Embodying Arlington's educational vision, the building will allow educators to deliver modern instruction in a safe, welcoming environment.

Educational space highlights include:

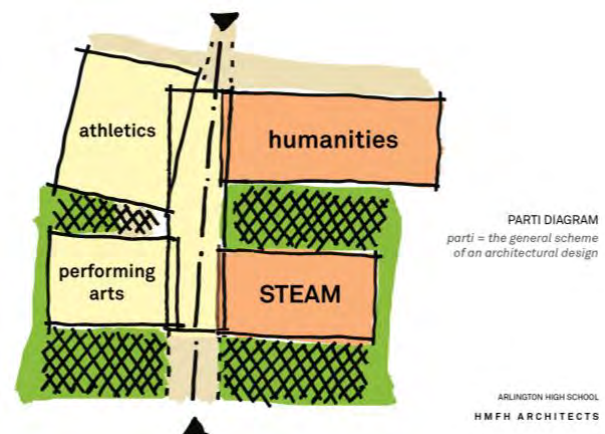
- Upgraded science labs and classroom layout to deliver 21st century instruction
- Expanded library and makerspaces enhance collaborative, hands-on learning
- New Discourse Lab for debate and dialogue
- Upgraded Auditorium and performing arts classrooms support the award-winning program
- Improved athletic facilities, outdoor learning areas, access to the Minuteman bikeway
- Sustainable design will reduce lifecycle costs

The 408,590 square foot facility will have a traditional exterior look and feel. The school is designed to accommodate 1,755 students in grades 9-12. Built on the existing 22-acre site, the scope of the project includes construction of an all-new school, sustainability features for a future carbon-neutral building, improved roadways and circulation around the facility, renovation of some of the athletic fields and demolition of the current building.



Figure b: Massachusetts Avenue Entrance

At the heart of the new building is a central spine off which four wings connect: STEAM (Science, Technology, Engineering, Arts & Math), Humanities, Performing Arts, Athletics. There are two main entry points; one near Mass. Ave. and the other near the athletic fields. Upon entering at either location, one is immediately within the central spine and able to clearly navigate through the complex. The building will also have separate entrances for the District Administration offices and Menotomy Preschool. An additional benefit of the new high school design is the flexibility it provides for enrollment growth.



While the school is to be an all-new building, several existing architectural elements will be reused and incorporated into the design to carry the history of the school facility forward.

Education-related programs (District Administration offices, Community Education offices, LABBB Special Education Collaborative program and Menotomy Preschool) will remain in the facility because of cost and adjacency advantages. Offices for Facilities, Information Technology (IT), Comptroller and a portion of the Payroll department have been removed from the project to reduce costs. As a result, only 29,365 sq. ft. of the new building will house non-AHS programs and services.

The design will maximize the opportunities for connections to the outdoors. Active, programmable open space will be doubled and two-thirds of the front green will be preserved as well the mature trees along Mass. Ave. The site will include significant improvements for pedestrian safety and direct access to the Minuteman bikeway. The softball and baseball fields will be renovated with lights and artificial turf and improved with multi-sport overlay fields for soccer, lacrosse, and other sports.



Figure c: Site Plan

Sustainability is integral to the design. The highly energy efficient, carbon-neutral, all-electric building will use ground-source heat pump and photovoltaic technologies. In addition, the project is participating in the Accelerate Performance program, a U.S. Department of Energy funded initiative that provides free consulting and future energy rebates. The school’s investment in new energy technologies will be analyzed and used if justified by a life cycle cost study during the Design Development phase.

Final design plans will be determined during the one-year Design Development phase, which will start immediately following the passage of the debt exclusion. Preliminary construction estimates predict phased construction could start in Spring 2020 with occupancy of the STEAM (Science, Technology, Engineering, Arts & Mathematics) and Performing Arts wings in January 2022 and complete occupancy by September 2024. One additional year of site work will follow.



COST OVERVIEW

Arlington's financial partner is the Massachusetts School Building Authority (MSBA), and the Town is following MSBA's precise process in order to **reduce taxpayer impact and take advantage of state funding for approximately one-third of the total cost of the project**. At the end of the Schematic Design phase, the project budget was reduced \$17.2M from the original Feasibility Study estimate of \$308M to arrive at a final project budget of \$290.8M.

Estimated MSBA reimbursement	\$86M
Arlington's estimated share of the project	\$204.8M
Total Project Budget	\$290.8M

On April 10th, the MSBA voted on the full project including \$83.4 million in reimbursement. This value does not include the \$2.6 million of contingencies' funds that will potentially be reimbursed during the next phase of the project. As dictated by the state's process, Arlington's reimbursement from the MSBA cannot be increased and **the total cost of the project cannot exceed the total overall budget without local approval**. The total project budget contains several contingencies to mitigate various risks as the project moves forward. The project will also use the Construction Manager at Risk delivery method which will further reduce Arlington's overall risk.

The **estimated per household impact to taxpayers is approximately \$800 per year**, based on an average assessed single-family home property value of \$752,184. While the cost of the high school is substantial, Arlington taxpayers will pay more if the debt exclusion fails because the Town will lose state funding but will still need to address the high school's needs. Additional details are provided in the Reference Materials.

There are three primary cost factors that contribute to the overall cost of the project:

1. High Schools are costly because they are large and require many specialized spaces.
2. The Boston area construction market is expensive, with 4% annual construction cost escalation.
3. AHS has specific factors that increase its cost above typical high school projects.

Examples of cost factors include: the AHS educational program is strong and broad and the new building needs to provide the specialized spaces required for a modern high school; education-related offices and programs currently residing in the facility will be included in the new school; the AHS site is complex, with a 24 foot grade change, site contamination, and Mill Brook flowing underneath; phased construction on a compact, complex site with an operating school is more costly than building on open space.

The project's cost is comparable to other high school projects in the Boston area with similar student populations and site complexities. Belmont residents recently approved a \$295M high school that will cost the average single-family homeowner \$1,800/year. The following [Project Benchmarks](#) matrix offers a snapshot comparison of comparable and concurrent high school projects. It is important to note that Arlington's construction cost per square foot considers the project's contamination, site and phasing complexities, and the cost per pupil includes the square footage of non-AHS spaces.

High School Project Benchmark Comparison

	Arlington HS	Waltham HS** (Vocational Included)	Belmont HS (Upper Middle Included)	Saugus HS-MS (Upper Middle Included)	Somerville HS (Vocational Included)
Total Project Cost	\$291M	\$381M	\$295M	\$160M	\$256M
Total Project Cost Escalated to AHS Schedule	\$291M	\$381M	\$311M	\$180M	\$287M
Construction Cost Per Sq. Ft.	\$576	Unknown	\$560	\$533	\$606
Design Enrollment	1,755	1,830	2,215	1,360	1,590
Project Cost Per Pupil *	\$165,728	\$208,357	\$140,409	\$132,499	\$181,098

Analysis escalated to AHS schedule. Refer to www.ahsbuilding.org for the complete analysis. *Cost per pupil calculation includes sq. ft. for non-HS program space, Arlington has more non-HS space than comparable projects. **Waltham data is from the Preferred Schematic Report, Schematic Design figures are not yet available.

Throughout the project, the AHS Building Committee has been mindful of the financial impact of the project on today's taxpayers, while planning a school that will serve the town for the next century. **The Committee has already implemented multiple ways to reduce the cost of the project**, all resulting in a lower project cost to taxpayers. Some Value Engineering (cost reduction) was done during Schematic Design, and Value Engineering will continue through the next phase, Design Development, and up until the end of the project.

Cost Cutting Measures

Action	Savings	Effect
Selection of Design Option 3A – New Building (vs. renovating original buildings)	\$25M	Reduces overall project cost
Relocation of Comptroller, Facilities and Information Technology offices	\$5M - \$8M	Reduces overall project cost
Value Engineering	\$7.6M	Reduces overall project cost
Accelerate Performance partnership	\$200,000+ in energy rebates	Reduces lifecycle costs of building

Action	Increase in MSBA Reimbursement
Proactive Building Maintenance Budget	1-2%
LEED (Leadership in Energy & Environmental Design) Certification	2%
Construction Manager at Risk delivery method	1%

Finally, a sustainable design will reduce the ongoing lifecycle costs for our largest town-owned building and will help Arlington reach its goal of being carbon-neutral by 2050.

REFERENCE MATERIALS

PROCESS

The process toward building a new high school began around 2013, when the high school was put on warning accreditation status by NEASC. That same year, Arlington Public Schools contracted [On-Site Insight](#) to do an evaluation of the building's structure and systems. This report revealed that many of these systems were at or beyond their expected service life or in need of extensive repair, including heating, ventilation, and electrical, as well as things such as windows and interior doors. After applying to the MSBA program in 2014 and again in 2015, Arlington was accepted in 2016, and has since followed their set process for the steps toward a new school.

The first step was to create a [Building Committee](#), to oversee the process for addressing the needs of the high school and find the most educationally appropriate and fiscally responsible solution. The Building Committee represents Town and School administration and committees as well as the community at large.

At the start of the Feasibility phase the Building Committee oversaw the hiring of the Owner's Project Manager (Skanska) and the Designer (HMFH Architects). Then the high school administration, with teachers, District Administration, School Committee members and community volunteers, worked to create the Educational Vision - the concept of what future education at AHS should be. This Education Vision in turn shaped the Educational Program, which outlined the spaces and adjacencies that would be included in the new school. Alternative sites were examined and found unsuitable, and the current site was deemed the best option.

It was then that design began. As per MSBA process, a number of specific design alternatives were explored: renovation-only (without any additions), renovation plus addition, and all new. Much community feedback was solicited via meetings, forums and surveys. Designs were modified based on community and committee feedback, and re-evaluated. The Preferred Design Concept was chosen in late June and approved by the MSBA in late August, 2018.

Since August, the project has been in the Schematic Design Phase. Work has been done on cutting costs while still maintaining all aspects of the Educational Program. The Preferred Design Concept has been refined, with much input from the community. It was submitted to the MSBA in February and approved on April 10th. After an affirmative debt exclusion vote, there will be a year of Design Development. Construction is expected to begin in 2020.

Project Milestones

Milestone	Date
Arlington submits Statement of Interest to MSBA	May 2014 and April 2015
MSBA invites AHS into the School Building Grant Program	January 27, 2016
MSBA Feasibility Phase	Feb. 2017 - August 2018
Building Committee evaluates alternate sites , determines current site is the most viable option	March 2018
Building Committee deems a renovation-only option (with no additions) unsuitable	April 2018
Building Committee selects 4 preliminary designs concepts	April 2018

Arlington submits Preliminary Design Program (PDP) to MSBA	April 25, 2018
Building Committee votes Preferred Design Concept	June 26, 2018
Arlington submits Preferred Schematic Report (PSR) to MSBA	July 11, 2018
MSBA invites Arlington to enter Schematic Design phase	August 29, 2018
Schematic Design Phase	Aug. 2018 - April 2019
Building Committee evaluated potential use of Parmenter School	January 2019
Arlington submits Schematic Design to MSBA	February 20, 2019
MSBA approves Arlington's Schematic Design	April 10, 2019

Community Involvement

Throughout the project, the Building Committee has continuously informed the community and gathered feedback through the following means and activities:

- Comprehensive project website (www.ahsbuilding.org)
- Facebook page (www.facebook.com/ahsbuilding)
- [e-Bulletin](#) (sent monthly to over 900 subscribers)
- Project updates at every School Committee meeting since 2016, with reviews of presentations and decisions
- Hosted eight [community forums](#)
- Two tours of the facility for community members (with more to come)
- Three tours & information sessions specifically for Town Meeting members
- Feedback solicited through three community-wide surveys
- Booth hosted at Town Day
- Presented at over twenty PTO meetings
- Two info sessions at the Senior Center
- Met with nearly twenty [Town Committees](#)

Massachusetts School Building Authority (MSBA)

Arlington is partnering with the [Massachusetts School Building Authority](#) (MSBA) to receive financial support for approximately one-third of the project. The MSBA is a quasi-independent government authority that collaborates with municipalities to equitably invest in finding the right-sized solutions to create safe, sound, and sustainable learning environments. The MSBA has a dedicated revenue stream of one penny of the state's 6.25-percent sales tax.

The Educational Vision and Education Program are key components of the development of a new high school. As dictated by the MSBA process, they are created in advance of any design decisions, and in fact drive the design of the entire school.

The Guiding Principles in the [Educational Program](#) -- teacher professionalism, inquiry and collaboration, creating and creativity, students' social-emotional needs, and an inclusive and engaged community -- were further informed by guidelines developed by an Educational Visioning Workgroup comprising teachers, administrators, students, and members of the community.

- 21st century learning: upgraded science labs, improved classroom layouts, new Discourse Lab
- Collaborative hands-on learning: enlarged makerspaces, central Library/Media Center
- Award-winning arts program: updated 900 seat Auditorium, larger art, band and chorus rooms, upgraded Performing Arts classrooms
- Health and well-being: larger gym with walking track, enhanced outdoor learning areas and courtyards, improved athletic fields

Key:
 AS = Academic Support
 SG = Small Group
 TP = Teacher Planning
 L.S. Cafe = Life Skills Cafe
 D.M. Lab = Digital Media Lab
 D.P. Lab = Digital Arts Production Lab

DESIGN CONCEPT

In order to accommodate enrollment growth and the [Educational Program](#), the new school will include 81 classrooms (60 regular, 17 science, 4 art) compared with 62 classrooms today. The new central spine (pictured below) will significantly improve circulation, wayfinding and spaces for socializing and gathering - a vast improvement over today's confusing, spread-out layout.

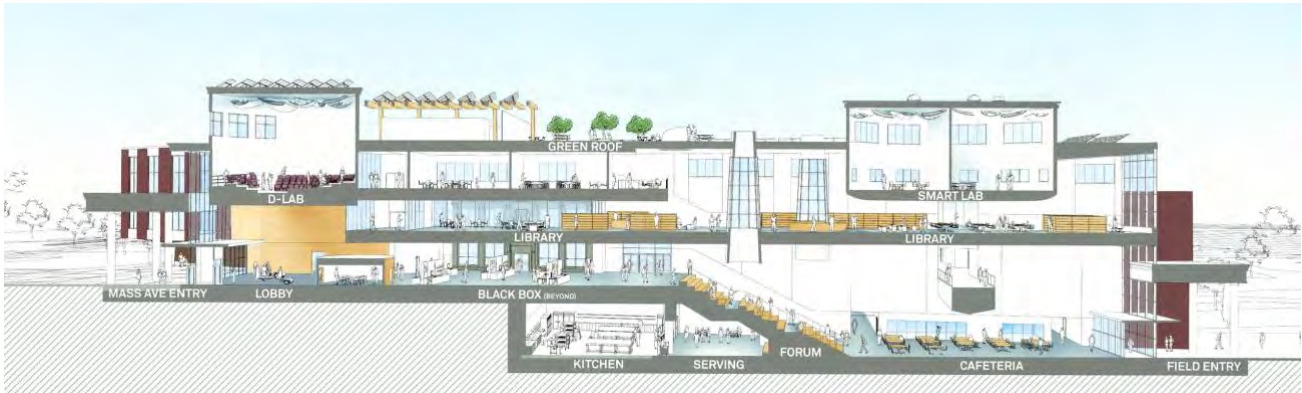


Figure d: The Central Spine

For an interactive look at the design concept, visit our [YouTube channel](#) for a fly-through video.

The new school is designed to respond to enrollment changes now and in the future. In the case of enrollment increases far out-stripping expectations in the future, the District Administration offices could be converted to classrooms and a twelve-classroom addition could be added off the STEAM (Science, Technology, Engineering, Arts and Mathematics) wing with a minimum of disruption, waste, and cost.



Figure e: Field Entrance

Design Concept Resources:

- Blog: [Proposed spaces within the future AHS](#)
- [Design Concept Overview](#)

Site Plan

The site will feature three courtyards (learning courtyard, student courtyard and an amphitheater), two plazas, and ease of connection to the athletic fields. By moving the footprint of the school towards the front of the site, more open space is created in the rear of the site. There are 227 parking spaces, 100 bike storage locations, sidewalks, bike paths, and stairs linking all aspects of the property.

Athletics and Fields

The baseball field will be enlarged to a varsity size field and full-size multi-sport practice fields (for soccer, lacrosse, etc.) will overlay both the softball and baseball outfields. The budget includes an artificial turf surface and lighting for both of these fields to increase usability and length of season.

A swimming pool is not included in the project because pools are prohibited from MSBA projects. Instead, the Town initiated an 'Indoor Recreational Space Study' to examine the need. The results of this study will determine next steps for considering these needs within the community.



Figure f: Field Entrance

Traffic

The site is designed to improve traffic flow around the building and allow two-way circulation around the new school connecting Mass. Ave. and Mill Street. Drop-off and pick-up zones are located at the field entrance (from Millbrook Drive) and along Mass. Ave. A traffic analysis reviewed the surrounding intersections that are impacted by the flow on and off the high school site. A traffic signal will be installed at the intersection of Mill Street and Millbrook Drive and is part of the total project budget.



Figure g: Aerial Site Overview

Site Contamination

There is chromium contamination across a portion of the high school site and this will affect construction decisions. The contamination lies under athletic fields, portions of the existing school, and paved areas, and is safely capped. For any area disturbed during construction, the project will include providing a contact cap of clean soil so the entire back portion of the site remains mitigated; all removed contaminated soil will be handled safely and appropriately. The front of the school site is contaminated by chlorinated volatile organic compounds from a previous dry cleaner near the campus and will be mitigated as necessary. Addressing these environmental issues, as well as hazardous material abatement of the existing school building will be carefully performed in accordance with state regulations and are factored into the budget.

Site Resources:

- [Open Space Overview](#) (comparison of current and new building)
- Traffic Impact Analysis [Report](#) and [Appendices](#)

Historic Element Reuse

An education that looks to the future must be mindful of the past. The architecture of the new high school actively speaks to the importance of history. Throughout the new design, there is intentional planning and integration of significant elements of the original buildings.

Multiple approaches are being considered to honor the Collomb House columns and exterior, including a graphic representation on the four-story glass façade, and possible inclusion of original columns inside the building. Additionally, the original 1914 Fusco building stone pilasters and entry details are being examined for possible relocation at the entrance of the large Performing Arts classroom along the central spine. Other interior elements to be re-used include the panel of intricate wood carving at the Fusco stairs and the River of Hands mosaic mural.

In addition, a subcommittee has been charged with cataloging and planning for the re-installation of memorials in the building and on the site.



Figure h: Possible relocation of Fusco House Entrance in Central Spine

DESIGN DECISIONS

The MSBA requires districts to evaluate three options: renovation only (with no additions), renovation/addition and new construction. Early on, HMFH Architects performed a renovation-only analysis (with no additions), using the district's [Educational Program](#) and [Space Summary](#) for a new high school to design the necessary spaces into the existing complex.

The AHS Building Committee determined that a [renovation-only option](#) was not adequate for the following reasons:

- Inability to accommodate enrollment growth
- Retrofitting the current program into the existing facility's footprint would result in an extremely inefficient layout without desired adjacencies
- There would not be space for numerous existing programs tied to AHS, as well as non-AHS offices

The MSBA concurred with this assessment. This left the Building Committee with two options: a new school or a renovation/addition.

Design Decision Process

Last April, the Building Committee carefully evaluated four design options: two renovation/addition concepts (Options 1 and 2) and two new construction concepts (Options 3 and 4). The preliminary design options were shared with the community at forums and through online surveys.

The Building Committee considered numerous factors when deliberating [which design concept](#) to select, carefully weighing the pros and cons of each option. Ultimately, the discussion centered around whether to spend more money and make concessions in order to retain original buildings or whether to build a new, lower cost, lower risk facility that would provide increased flexibility and sustainability features.



Figure i: Preliminary Design Options

A variation of Option 3, an all-new construction design concept, was selected because it:

- is more cost effective than renovation/addition options
- minimizes disruption to the school
- has a faster construction timeline with the first building open to students in 2022
- retains two-thirds of the front green
- minimizes student disruption and modular classroom costs
- provides the best path to a carbon-neutral facility

The Building Committee engaged in a very public and careful voting process. No one on the Building Committee supported Option 1, an option that would have renovated the original Fusco and Collomb Houses and built additions on the rear of the building. Selecting this option would have meant two years without an auditorium for our students followed by two years without a gym. In addition to being an estimated \$25M more costly than the design the committee chose, this option would have required placing students in modular classrooms during construction. This alternative was deemed too disruptive to the academic and extracurricular life of the school.

Design Decision Process Resources

- Blog: [What factored into the preferred design concept decision](#)
- [Building Committee Leadership letter](#)

Additional Educational Programs and Offices

In an effort to reduce the square footage of the new facility, and thereby the overall project cost to taxpayers, the Building Committee evaluated possible relocation of non-AHS programs and offices.

During the Schematic Design phase, the decision was made to move the Comptroller to Town Hall and the Information Technology (IT) and Facilities departments to the future Department of Public Works (DPW) facility. In addition, the original space for the Payroll office in the building has been removed, the District Administration space has been reconfigured to accommodate Payroll personnel, and most Payroll storage will be moved to Town Hall. These changes not only remove square feet from the building, but also relocate ~30 employees who would have used on-site parking.

Given the fact that every other school is already at or reaching capacity, and there is very little space in other Town buildings, there were very limited options to consider.

The remaining programs and offices will stay in the new building due to cost and adjacency advantages:

- [Menotomy Preschool](#) - a federally mandated inclusion-based preschool that serves ~150 students
- [Arlington Community Education](#) - a community resource that runs over 600 classes per year at AHS
- [LABBB Special Education Collaborative](#) - a special education collaborative program between the Lexington, Arlington, Burlington, Bedford and Belmont school districts
- School District Administration & Payroll offices

Parmenter School Analysis

HMFH Architects performed a [cost/space analysis](#) on the potential use of the Parmenter School for the Menotomy Preschool and District Administration offices. After reviewing the study results and a discussion of the pros and cons, the Building Committee voted to use the Parmenter School only as a temporary location for Menotomy Preschool during construction of AHS and not for permanent relocation of either the preschool or the District Administration offices.

The table below summarizes the costs from the study.

	Estimated Cost for Permanent Relocation to Parmenter School		Estimated Cost to Include in New AHS
Menotomy Preschool			
Construction Cost	\$11,000,000	Construction Cost	\$11,200,000
Lost Rent (ACC)*	\$400,000	Temp. Parmenter Renovation	\$2,300,000
Total	\$11,400,000	Total	\$13,500,000
District Administration			
Construction Cost	\$7,800,000	Construction Cost	\$5,800,000
Swing Space in Downs House	\$1,000,000		
Total	\$8,800,000	Total	\$5,800,000

*Note: The above numbers do not include soft costs. *Rent is for the remainder of the lease.*

The following reasons were cited for keeping District Administration and Menotomy Preschool at AHS:

- In order to have enough space for the Menotomy Preschool program, the Town would need full use of the Parmenter School building and would need to break the lease of the current tenant (Arlington Children's Center) in June 2019 forcing the program to move.
- Even with use of the entire building, there would not be enough classroom space to support the preschool's expected growth and thereby accommodate all students who require mandated services.
- There are educational benefits to keeping the preschool location at AHS, allowing high school students to continue hands-on work for Early Childhood Development courses.
- If part of the AHS project, Menotomy Preschool is eligible for MSBA reimbursement. However, relocating the preschool permanently to Parmenter would disqualify it for reimbursement at this time.
- The cost to renovate Parmenter for permanent District Administration use was more expensive than including the offices in the AHS project.
- Due to construction schedules, permanent use of Parmenter for District Administration offices would require an additional \$1.2M in temporary swing space costs during construction and would also require the preschool to be located at AHS for part of the construction, against best practice recommendation.
- Keeping both the preschool and District Administration offices at AHS provides future flexibility should AHS enrollment grow significantly and additional space be needed.

SUSTAINABILITY

An important aspect of the new high school is that the building be sustainable, consistent with the Town's long-standing commitment to sustainability and climate change mitigation. Aside from being the right thing to do, achieving a certain level of energy efficiency and sustainable design, as measured by the [LEED](#) rating system, qualifies the project for an additional 2 percentage points reimbursement from the MSBA.

Among other features, the new building will have:

- Ample daylight and good connections to the outdoors
- Improved pedestrian and bicycle safety, access and circulation, more/better secure bicycle parking, and direct access to the Minuteman Bikeway
- Recovery of food waste from the cafeteria
- Low-flow water fixtures

When Arlington joined the Metro Mayors Coalition, it committed to becoming carbon-neutral by 2050. The AHS project is a once in a lifetime opportunity to have this goal reflected in our largest building (and largest energy user). We are focused on three main energy objectives:

1. Building a highly energy efficient building
2. Designing for an all-electric building
3. Maximizing onsite renewable (solar) energy production

This will result in low operating costs, create a more resilient building, and position the building to become carbon-neutral in its operation; as grid power becomes cleaner over time, the emissions associated with the operation of the high school will fall. It also provides an important hedge against energy price volatility and any future statutory requirements to phase out the use of fossil fuels or policies that impose a price on carbon, which would avoid costly retrofits in the future.

Accelerate Performance Program

Arlington is participating in the [Accelerate Performance Program](#) being offered through our two utilities, Eversource and National Grid. Participation provides us with free technical assistance paid for by the utilities (normally this is cost-shared with the customer), and guarantees a minimum level of financial incentives of \$0.50 per square foot, or just over \$200,000. Actual incentive levels, which are likely to be higher, will be determined once the actual energy performance of the new building is known. The pilot program requires us to adopt aggressive, but realistic, energy use targets early in the design process, so that it is possible to achieve the desired energy performance at no or low incremental cost. Preliminary energy modeling suggests the new building will use half the site energy as the current building, yet provide vastly superior comfort. We also expect to generate substantially more renewable energy onsite than the current solar array provides.

The school's investment in new energy technologies will be analyzed and used if justified by a life cycle cost study during the Design Development phase.

CONSTRUCTION

Phased Construction Process

Since there is [no other site](#) on which to build a new facility, and no alternate place to house students during construction, the existing school will be in operation during construction.

New construction in a single phase on an empty site is the easiest and therefore cheapest way to build: fewer constraints equate to a faster, more efficient and cost-effective process and product. The current AHS parcel is 22 acres, and the next viable parcel in town is 16 acres. Arlington doesn't have land available to support new construction on an empty site.

Building on an existing, occupied site, with phased, new construction is a complex effort requiring attention to safety, utility coordination, segregation of active school buildings and grounds from construction work, minimizing disruption to classroom work, and careful attention to both the construction schedule and the academic schedule. These complexities and safety challenges create constraints on construction work that can have significant impact on both schedule and budget.

A significant advantage to the chosen design is the ability to construct the first phase of the project without interfering with the educational spaces of the existing school. Building the STEAM and Performing Arts wings first also provides valuable swing space for future construction phases. At this time, there is no anticipated need for modular classrooms nor any interruption in availability of major spaces such as an auditorium or gymnasium. The preschool will be temporarily relocated to the Parmenter School during construction.

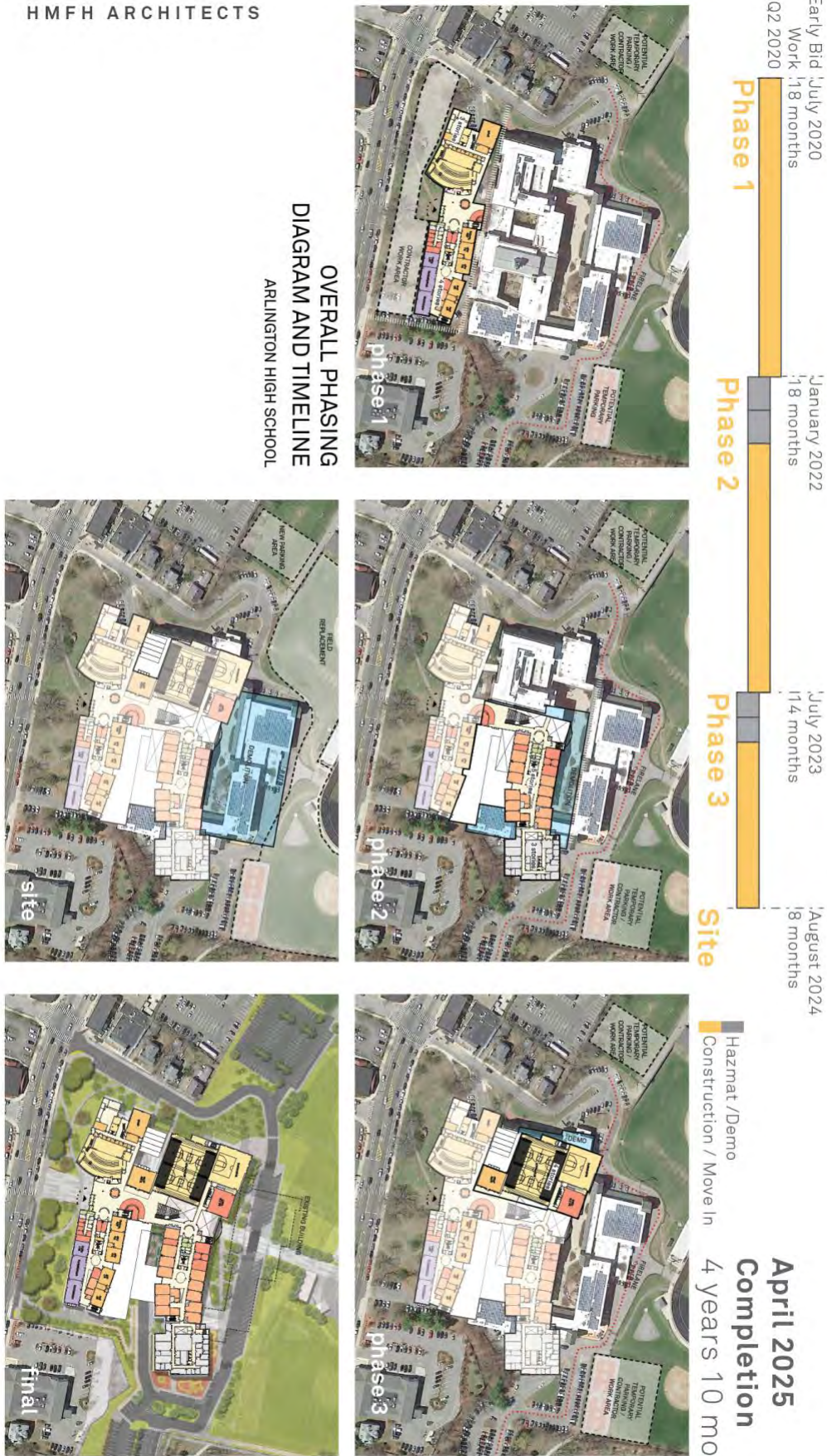
Assuming the estimated construction timeline, all children in 3rd grade or younger will attend a new, finished school during their entire high school career and today's freshmen (class of 2022) will benefit from the new STEAM and Performing Arts wings that will be completed in the winter of their senior year. These details and schedule are subject to change during the next phase of the project when the Construction Manager is hired.

Student Impact During Construction

Minimal disruption and safety of the students and staff is unequivocally the highest priority. The Town, School Administration and project team will continuously plan and monitor the educational environment and safety of the students and staff while the new school is being constructed.

During construction, Skanska (the Owner's Project Manager) will always be present on site and involved in all aspects of the phase. Prevention of any disruption starts with proper planning, including: frequent consultation with school administrators, setting quiet/study days around the school schedule (including during testing for MCAS and other exams), logistical planning for safe flow of students/staff through the building and site, segregation of construction activities from the operating school, and continuous monitoring of air quality.

OVERALL PHASING
DIAGRAM AND TIMELINE
ARLINGTON HIGH SCHOOL



Construction Manager at Risk Delivery Method

The Construction Manager (CM) at Risk delivery method will be used for this project. This process is ideal for large, complex and phased projects like AHS. In this delivery method, the Construction Manager is hired during the Design Development phase of the project. This allows for early constructability reviews as well as detailed cost estimates throughout design. This can limit problems during the construction phase of the project. At the completion of the design phase, the Construction Manager becomes the builder of the project. A Guaranteed Maximum Price (GMP) is developed based on the estimates and scope from the design phase.

The CM at risk model allows for the Owner to be part of the selection process of the trades and subcontractor. This allows for a much more thorough review by the Town and any issues with proposed subcontractors can be raised prior to award of the contract. Additionally, this method allows for a fast track schedule where long lead time items can be procured prior to the design being complete. Throughout the process, the CM accounting is open book and ultimately any savings are returned to the Town. The CM at Risk delivery method makes for a less adversarial relationship between all parties and allows them to be partners in the process. Arlington used the CM at Risk delivery method for the Gibbs School renovation project.

COST

Cost Factors

There are three primary cost factors that contribute to the overall cost of the project:

1. *High Schools are costly*

They are large (the new building will serve 1,755 students) and require many specialized spaces such as science labs, auditorium, library, performing arts classrooms, makerspaces, athletics spaces, and specialized program spaces. Due to these factors, is not uncommon for high schools to cost 6-8 times that of primary education facilities.

2. *The Boston area construction market is expensive*

Due to the construction boom in the Boston area, the market has been experiencing 4% annual construction cost escalation for the past few years and this trend is expected to continue.

3. *AHS has specific factors that increase its cost above typical high school projects*

- The current building is already reaching capacity with 1,380 students.
- Ranked #9 in the state by US News and World Report last year, Arlington High School's Educational Program is stronger and broader than the average Massachusetts high school.
- Building a new school on an existing, occupied site, with contamination and phased construction will be complex.
- Additional education-related programs and services, such as the 150-student preschool, will remain in the new facility.
- Additionally, sustainability is an inherent part of the new design to not only reduce lifecycle costs of the Town's largest facility, but also to help Arlington reach its goal of being carbon-neutral by 2050.

Cost Factor Resources:

- Blog: [Cost - The Big Picture](#)

Budget

Once Arlington voters approve their share of the project, the expectation is that any cost increases will be absorbed into the budget. During Design Development, three separate estimates are performed as a check against the budget. If at any time the estimates come in over budget, the Building Committee will perform a Value Engineering (cost reduction) exercise to bring the project back on budget.

The total project budget contains several contingencies to mitigate various risks as the project moves forward.

These include:

- Design & Pricing Contingency to accommodate bid overages, design changes, and/or additions in the Design Development phase.
- Construction Contingency for unforeseen conditions discovered during the Construction phase, such as additional soil disposal not previously planned.
- Owner's Contingency to cover additions for School Department requests, such as additional computers to accommodate a surge in enrollment.

- GMP (Guaranteed Maximum Price) Contingency. In exchange for a Guaranteed Maximum Price prior to the issuance of final documents the Construction Manager may use this contingency with the consent of the Owner to cover line item overruns or schedule acceleration.

The total amount of these contingencies is \$30,317,784 which is 12.88% of the Construction Budget of \$235,286,827.

MSBA's Contribution

MSBA's grant to a School District begins with a base reimbursement rate of 31 percentage points on *eligible costs*. Additional points are added based on community social-economic factors as well as any executed incentive actions (e.g. sustainability, capital maintenance).

For Arlington, MSBA will contribute 49.72% towards eligible costs. Eligible costs represent a portion of our *Total Project Cost* while Arlington will pay 100% of some elements of the project.

The MSBA contributes funding to the project generally based on the relative costs of a "baseline" school, as calculated based on the approved enrollment size. The "baseline" school assumes a particular number of general, science, and Special Education classrooms, the amount of administrative spaces, and the square foot size of the cafeteria, gymnasium, and library. All costs to provide a baseline school are considered eligible.

However, every community's Educational Program is unique. Based on the approved Educational Program, each school district determines the specific space needs for its community. Variations for any community's school from the commensurate "baseline" school are reviewed by the MSBA. In some cases, the MSBA determines that additional or larger program spaces are appropriate and they elect to make those costs eligible. Examples of this may include additional classrooms, music or art rooms, and preschool spaces.

In other cases, there are standard MSBA exclusions for which no community receives funding; examples of this may include hazardous materials abatement, site costs beyond 8% of building costs, modular classrooms including site prep and demo, building spaces such as a field house, or District Administration offices. In a third category there are project elements for which the MSBA will contribute to the guideline amount, assigning the balance to the community: examples of this may include an auditorium (only up to 750 seats), gymnasium (only up to 14,000 sq. ft.) or other space programed to be larger than the guideline size.

Since the MSBA applies its Grant reimbursement only to eligible costs, their impact on the Total Project Cost (eligible and ineligible costs) means the MSBA's contribution to the full project is effectively a smaller percentage than its contribution to what is eligible. This is called the *Effective Rate*. In the case of the Arlington High School project, the MSBA's effective contribution is estimated to be approximately 30% of the Total Project Cost.

Taxpayer Impact

The high school will be funded through a debt exclusion, which is a temporary tax increase to pay for a specific debt (i.e. building capital expense). When the debt has been paid, taxes are reduced. The anticipated term of debt for the high school is 30 years and assumes 4% interest. The following table calculates the average annual tax impact per household.

Dwelling	Average Assessed Value (Jan. '19)	Annual Tax Impact (full load)
Condominium	\$464,795	\$496
Single Family Home	\$752,184	\$802
2 Family Home	\$860,758	\$918
3 Family Home	\$915,450	\$976

The debt exclusion impact on taxes will not be immediate and will ramp up at a rate similar to the rate at which spending on the high school increases over the four years of design and construction. The first year (FY2020) will see a small increase that will likely represent 10% to 15% of the total cost. The full impact will affect tax bills by FY2023 or FY2024.

A [variety of exemptions are available](#) to reduce property tax obligations for certain qualifying taxpayers: elderly persons, blind persons, disabled veterans, surviving spouse or orphaned minor child, widow or orphaned minor of police officer or firefighter, and extreme hardship. More information can be found on the Assessing Department page of Town of Arlington website. The Town Manager and Select Board are also considering additional options to be discussed at the 2019 Town Meeting.

PERSPECTIVES ON COST

Cost Cutting Measures

As mentioned before, the Building Committee has already taken numerous steps to reduce the overall cost of the project. This process will continue through the end of construction.

The initial Schematic Design estimate was for \$299M. Although this estimate was lower than the initial [Preferred Schematic Design](#) (PSR) estimate of \$308M, many on the Building Committee wanted to see the price further reduced without affecting programmatic areas that would affect the Educational Program.

The Building Committee voted to further decrease the budget in the following ways:

- Building and Site Attributes: Simplify the amphitheater and Minuteman Bikeway ramp designs; accept alternate design concepts for recognizing and re-using original building elements; select alternate facade/interior finishing materials in select areas
- Town/School Payroll Department: reconfigure the District Administration space to accommodate Payroll personnel, move most Payroll storage to Town Hall.
- Sustainability: remove photovoltaic infrastructure cost since it is included in the Town's Power Purchase Agreement (PPA) with Ameresco.

Resource:

- Blog: [Cost Cutting Measures to Date](#)
- Blog: [Arriving at the final budget](#)

High School Benchmark Comparison

As part of the Building Committee's due diligence, it created a benchmark comparison between Arlington, Belmont, Waltham, Saugus and Somerville high school projects. These five projects are navigating through similar challenges - dense suburbs with somewhat comparably scaled projects being undertaken generally within the same timeframe. These projects also have similar enrollments and are all located within the Boston area.

The Benchmark Analysis is a tool to study similarities, but also for consideration of different types of construction, different site conditions, and even different programmatic elements. All five projects will also struggle with an extremely tight construction market in densely populated communities. Like Arlington, several will contend with maintaining a functional school environment just a fence line away from a construction site. Hazardous materials are a common problem in older buildings, but few high school sites have equivalent environmental and soil remediation issues as Arlington.

Many towns house their school District Administration offices and state-mandated preschool in school buildings. However, Belmont, Waltham, and Somerville are not contending with these space needs in conjunction with their high school projects as is the case in Arlington. This analysis also compares the AHS project with previous high school projects in the state as well as recent Arlington projects, escalating the total construction cost by 4% annually to accurately compare the projects. Please refer to the [Benchmark Analysis](#) for more details.

Cost Escalation Analysis

Project	Completion Date	Construction Cost	Construction Cost Escalated to AHS Timeline	Total Escalated Cost with Soft Cost Factor *
Minuteman Regional HS (~600 students)	2019	\$119M	\$141M	\$177M
Thompson School	2013	\$15M	\$23M	\$29M
Gibbs School	2018	\$19M	\$23M	\$29M
Newton North HS	2010	\$166M	\$286M	\$359M

*Soft cost factor used is 25.7%. This figure is derived by averaging the soft costs for Arlington, Belmont, Saugus and Somerville high school projects.

Request for Services estimates

Prior to the Feasibility and Schematic Design phases, it is difficult to understand the scope of a project, and the MSBA discourages districts from performing any pre-feasibility estimating. Therefore, early budget ranges contained in the Owner's Project Manager and Designer Request for Services (RFS) were based on comparative data from other similar projects at that time and used as a starting point.

The non-binding, early numbers could not contemplate the complexities and unique features of our site, nor could they consider our Educational Program because we had not yet submitted it. It was not possible to estimate the full scope of our project because no work was performed prior to hiring the Owner's Project Manager and Designer/Architect. It is common for early budget ranges to be lower than the final budget. For almost every district, the estimates shown on the RFS can be as much as half the estimate in later stages.

Town	RFS (Request for Services) Project Estimate	Schematic Design Estimate
Arlington	\$150M	\$291M
Somerville	\$125-\$150M	\$256M
Belmont	\$140-\$210M	\$295M
Waltham	\$125-\$150M	\$381M*

*Based on Preferred Schematic Report (PSR) estimate, Schematic Design estimate is not available.

The Consequences of a 'No' Vote

At the direction of the AHS Building Committee, the Finance and Communications Subcommittees evaluated the cost of creating a working high school should Arlington vote against the debt exclusion. Because of significant enrollment growth and deteriorating facility conditions, doing nothing will not be an option; the needs are pressing and must be addressed in the next few years. This report discusses the framework, the results of the study, and assumptions. It then covers more specifics on the process that would be followed should the debt exclusion be voted down.

Framework

The conceptual framework for this evaluation was to use the [Renovation-Only](#) model created for the [Preliminary Design Program](#) as a base. The Renovation-Only model detailed an entire school *built within the footprint and walls of the existing school*. However, to create enough space to bring classrooms up to the correct size and number, the Renovation-Only model could not accommodate a number of essential programs. To address these programmatic elements, the group also requested our Owner's Project Manager Skanska and Architect HMFH, to create an estimated project cost based on square footage for a new construction addition to accommodate the remaining needs. The resulting school design (designated "No Vote Reno/Addition") was then evaluated for cost and for functionality.

Outcome and Description

The No Vote Reno/Addition school would be a school with inferior layout and facilities that would take much longer to build and cost taxpayers more than the proposed new school. To build the No Vote Reno/Addition School, Arlington taxpayers would pay at least \$258.9 million, with the annual tax bill for the average single-family home increasing by \$1,014 (vs \$802 for the proposed new school). As a No vote would terminate our agreement with the MSBA, the scenario assumes no MSBA funding. The best-case scenario would see the building completed in 2026, taking at least 6 years after the initial decision.

The No Vote Reno/Addition school would have enough classrooms for 1,755 students, but major core spaces would be significantly undersized: cafeteria seating only 375 (vs. 585 needed), auditorium reduced for ADA compliance from 916 (existing) to 566 seats, gymnasium capable of scheduling only one class at a time. Numerous classrooms would be obstructed by columns. Almost all large educational spaces would be windowless and without natural light, including a Discourse Lab and a Performing Arts classroom created by dividing Old Hall. School layout and wayfinding would be worsened because of the need to enlarge classrooms while constrained by the building footprint; as a result, academic departments would be very spread out, impeding teacher collaboration. There would not be additional breakout spaces for student group work. Outdoor learning areas would remain inadequate. Significant improvements to the school's environmental sustainability would be difficult. There would also be major student impacts during construction. Students would be without access to a gym or auditorium for one construction phase each (2 x 15 months). Modular classrooms would be used for the entire construction period. The accompanying spreadsheet compares the three schools (Existing, No Vote Reno/Addition, Proposed New) and gives additional details.

Assumptions

In costing out the No Vote Reno/Addition school, construction costs were escalated at 4% per year, assuming there would be at least a two-year period before construction could begin. An allowance was included to temporarily house the preschool off-site during construction. Offices for IT, Comptroller, and Facilities were assumed to be moved off-site. The following items were **not** included in the pricing (although included in the proposed new school): renovation of athletic fields, artificial turf and lighting, geothermal wells, bike path connection, road renovation, and a traffic signal at Mill Street. No allowances were added for costs that seem very likely to arise given the delayed timeline: additional modulars to address enrollment growth, or repairs to major mechanical systems before construction is completed.

Process

In the event of a failed debt exclusion, the process toward renovating the existing school would be as follows: first, the decision about what to do would be made by town leadership. A plan would need to be put in place for the high school very soon because enrollment is expected to reach 1,732 by 2024, and the current building cannot hold that many students. In addition, the next New England Association of Schools and Colleges (NEASC) accreditation cycle is in 2023. In 2013, NEASC put the high school on [warning](#) because of inadequate facilities; substantive progress toward change will be required for the next evaluation.

Once a decision on action has been made, a new Owner's Project Manager and architect/ designer would have to be hired, and funding for them would have to be obtained via a new debt exclusion vote. The design process would then take approximately two years. After the design is complete, a separate debt exclusion vote for the building would have to occur before the project could move forward. Assuming voters approved the building debt exclusion, construction could begin, with the first phase completed 15 months later (~3 years after initial decision point) and the school completed in about 4 years (~6 years after initial decision point). These schedules are aggressive, and the project would most likely take longer, and thus cost more.

MSBA funding for the No Vote Reno/Addition project would be uncertain and less likely. The town would have to reapply **and** be accepted back into the MSBA program. Experience from other towns suggests that being invited back into the MSBA process following a failed project can take multiple attempts, if it is approved at all. Applying for MSBA consideration would also add to the project's timeline, potentially significantly.

Conclusion

Because of enrollment needs, deteriorating facility conditions and accreditation concerns, major work will need to be done on the high school even in the event of a failed debt exclusion. This report details the No Vote Reno/Addition school as an attempt to put numbers to this scenario. The resulting school would fall short in facilitating the educational program, have an inferior layout and facilities, while taking much longer to build and costing taxpayers significantly more than the proposed new school.

Consequences of a 'No' Vote

		Current high school	"No Vote" reno/addition	New high school
Cost	Estimated cost to Arlington taxpayers	N/A	\$259 million	\$205 million
	Estimated contribution from MSBA	N/A	\$0	\$86 million
	Annual tax impact on single family home	N/A	\$1,014	\$802
Education Spaces	Classrooms obstructed by columns	Yes: 6 classrooms	Yes: 18 classrooms	None
	Sizes of general classrooms	600 to 1400 sq ft, 66% below MSBA guidelines	850 sq ft	850 and few 950 sq ft
	Sizes of science classrooms	11 of 12 average 950 sq ft, 1 room is 1440 sq ft	1440 sq ft	1440 sq ft
	Sizes of art classrooms	925 sq ft	Same as existing = below MSBA guidelines	1200 sq ft
	Sizes of band/chorus classrooms	1500 and 1300 sq ft	Same as existing = below MSBA guidelines	2500 sq ft x 2
	Collaboration & breakout spaces	Poor: hallways/stairwells, unsupervised	Poor: hallways/stairwells, unsupervised	Many useable spaces, easily supervised
	Major windowless educational spaces	Performing arts, Makerspace	Discourse Lab, Digital Media, Performing Arts, Makerspace, CADD Lab, STEM Lab, Makerspace/Engineering, Smart Lab	None
	Large group/classroom spaces	Poor: Old Hall, limited space in Media Center, Cafeteria	Improved: Discourse Lab, Media Center, Cafeteria	Excellent: Discourse Lab, Library Learning Commons, Cafeteria, Performing Arts, etc.
Core facilities	Auditorium capacity	916 seats	566 seats	900 seats
	Media center layout	Poor	Same as existing	Excellent
	Cafeteria size	Undersized (375 students)	Undersized (375 students)	585 students
Athletic facilities	Gym sizes	12700 + 6900 + 3000 sq ft x 2 (Pit, Fitness)	12700 + 6900 + 3000 sq ft x 2 (Pit, Fitness)	16000 + 7000 + 3000 sq ft (alt PE)
	Inside walking track	No	No	Yes
	Renovated fields	N/A	Not included	Yes
	Artificial turf, lighting to increase usability	No	Not included	Yes
Educational experience	Wayfinding - intuitive directions	Poor	Poor	Excellent
	Adjacencies - promotes teacher collaboration	Poor	Very Poor	Excellent
	Support of Educational Program	Poor	Poor	Excellent
	Teacher ability to monitor students	Poor	Poor	Excellent
	NEASC Accreditation	No - on warning status	Yes	Yes
Building attributes	Net-to-gross ratio (measure of space efficiency, low is better)	1.73	~1.69	1.50
	Number of exterior doors	55 doors (33 entrance/exits)	~60 doors	31 doors
	Usable outdoor learning spaces	Poor	Poor	Excellent
	Accessibility (elevators, sidewalks, entrances)	Poor	Fully accessible but very spreadout	Excellent
	Sustainability	Poor	Improved but suboptimal	Excellent
	Direct Minuteman Bikeway access	No	Not included	Yes
Construction	Build on part of front green	N/A	Build on front green or east parking lot	Yes
	First available new building	N/A	39 months after decision	2022
	Construction completed	N/A	6 years after decision (2026 or later)	2024
	Modulars needed?	N/A	Many	None
	Facility unavailability during construction	N/A	Gym, auditorium each unavailable for one phase = 2 x 15 months	None

Arlington High School - Consequences of a 'No' Vote

	Total (Millions)
Renovation of Existing School Footprint (392,316 SF)	\$212
Additional Space Required (76,410 SF)	\$47
TOTAL COST	\$259
Space Requirements Included	
60 General Classrooms	
4 Small Seminar Rooms	
17 Science Classrooms/Labs, Prep Rooms and Chemical Storage	
Special Education Support Spaces	
Harbor/Short Stop Programs	
Art and Music Spaces (same size as existing)	
Voc/Tech Spaces	
Library, Nurse, Administration and Guidance	
Gym and Cafeteria (same as existing)	
Auditorium reduced from 900 to 560 seats to comply with ADA	
Modulars During Renovation	
All ADA and Code upgrades	
Temporary Space for Preschool during construction	
Preschool	
Specialized Programs (Reach, Workplace, Millbrook, Compass)	
LABBB	
Daycare	
District Administrative Offices/Payroll	
Toilet Facility	
Does NOT Include	
Geothermal Wells	
Artificial Turf	
Athletic Field Lighting	
Larger Gym	
Auditorium A/V Upgrades	
Auditorium Seating Upgrades	
Minuteman Bikeway Access	
Outdoor Amphitheater	
Traffic Signal at Mill St.	

Assumes escalation period of (2) years to allow for design and local approvals from the original July 2020 construction start.
Total includes construction and soft cost. Soft cost percentage is the average of Arlington, Belmont, Saugus and Somerville.

NEXT STEPS

With the MSBA Board of Directors' unanimous approval of Arlington's Schematic Design on April 10, Arlington is now officially in the Funding the Project phase. As dictated by the MSBA process, Arlington has 120 days (until August 8) to secure local funding of the project through a town-wide Debt Exclusion vote. In addition, Town Meeting must approve appropriation of funds for the project by a $\frac{2}{3}$ majority vote at the Special Town Meeting on April 29. The Project's Scope and Budget and the Town Meeting Warrant article language are locked in and cannot change without re-approval from the MSBA Board of Directors which would result in a delay of the project.

Assuming passage of the June 11 debt exclusion vote, a Construction Manager will be hired and the Design Development phase of the project will begin. During Design Development, the final architectural and construction documents will be created and planning for the project will begin in earnest.

Preliminary construction estimates predict phased construction could start in Spring 2020 with occupancy of the STEAM (Science, Technology, Engineering, Arts & Mathematics) and Performing Arts wings in January 2022, and complete occupancy of the building by September 2024 followed by a final year of site work. This schedule is subject to change based on the Construction Manager's evaluation of the project.



Town of Arlington, Massachusetts

ARTICLE 2

Warrant Article Title:

ACQUISITION OF REAL ESTATE/PARCEL 54-3-3.A (25 GROVE STREET)

Summary:

To see if the Town will vote to authorize the Select Board to acquire, by purchase, gift, eminent domain or otherwise, in fee simple, an approximately 8,427 square foot developed parcel of land identified as parcel 54-3-3.A, located at 25 Grove Street, Arlington, including all buildings and structures thereon, and all privileges and appurtenances thereto belonging, as well as all trees and shrubs thereon, excepting therefrom any easements of record included within such description by whomsoever the same may be owned, for general municipal purposes, and for all purposes and uses accessory thereto, including but not limited to, *inter alia*, the expansion of either or both the existing Department of Public Works facility and/or the Arlington High School campus and Arlington High School educational facilities and amenities, including parking, service stations and areas for DPW vehicles, and/or class rooms, conference and meeting rooms, study areas and educational office space, and that to meet such expenditure to appropriate a sum of money to be expended at the direction of the Town Manager, to pay costs of acquiring said property, and for the payment of all costs incidental and related thereto, and to determine whether such amount shall be raised by taxation, transfer from available funds, borrowing or otherwise; to authorize the Town Manager and Select Board to apply for, accept and expend any grants from any source whatsoever that may be available to pay any portion of this project; or to take any other action related thereto.

Requested by:

(Inserted at the request of the Town Manager)



Town of Arlington, Massachusetts

ARTICLE 3

Warrant Article Title:

APPROPRIATION/FUTURE ZONING BYLAW AMENDMENTS

Summary:

To see if the Town will vote to appropriate or transfer a sum of money to fund development of amendments to Arlington's Zoning Bylaw to align with the Arlington Master Plan, including payment of consultant fees in furtherance of the process; or take any action related thereto

Requested by:

(Inserted at the request of the Town Manager)



Town of Arlington, Massachusetts

ARTICLE 4

Warrant Article Title:

DISPOSITION OF REAL ESTATE/ PARCEL 133-1-8 GLOUCESTER STREET

Summary:

To see if the Town will vote to authorize the Select Board to dispose of, or grant access to or through a 216 square foot parcel of land identified as 133-1-8 Gloucester Street by sale, grant of easement, or otherwise under such terms as the Town may specify consistent with applicable legal requirements; or take any action related thereto.

Requested by:

(Inserted at the request of the Town Manager)



Town of Arlington, Massachusetts

ARTICLE 5

Warrant Article Title:

APPROPRIATION/RESIDENTIAL DESIGN GUIDELINES

Summary:

To see if the Town will vote to appropriate or transfer a sum of money to fund development of residential design guidelines, including payment of a consultant to develop such guidelines and recommend a design review process for the Town; or take any action related thereto.

Requested by:

(Inserted at the request of the Town Manager)



Town of Arlington, Massachusetts

ARTICLE 6

Warrant Article Title:

APPROPRIATION/MUGAR PROPERTY APPLICATION REVIEWS

Summary:

To see if the Town will appropriate or transfer a sum of money to fund support of the review and/or comment of any application or request for approval to the Town or the Commonwealth of Massachusetts for or accessory or otherwise related to the construction of residential dwelling units off of Dorothy Road in Arlington, Massachusetts (otherwise known as the "Thorndike Place" or the "Mugar Property"), including payment of legal, consultant, expert, and technical review fees in furtherance of such review and/or comment, and any legal actions reasonably arising therefrom permissible under law; or take any action related thereto.

Requested by:

(Inserted at the request of the Town Manager)